AQUATICA™ Digital



OPERATING MANUAL FOR THE AQUATICA HD WAVE HOUSING FOR THE SONY HDR-XR500V/520V HD CAMCORDERS

FOREWORD

Thank you for having selected the AQUATICA HD WAVE Digital Video Housing System for your underwater video needs.

The AQUATICA HD WAVE Digital Video Housing is the result of a long and continuing relationship with the most demanding underwater imaging professional in the world. Each housings is handcrafted, quality checked and pressure tested to a 300 feet equivalent by a small group of specially trained individuals, each of whom takes the utmost pride and satisfaction in offering the best line up of underwater camera housing in the world.

The AQUATICA HD WAVE Digital Video Housing was designed for optimum technical and optical performance and to provide easy and efficient underwater access to essentials functions and controls of the HDR-XR500V/520V HD camcorders

This manual assumes that the User is already familiar with the Sony HDR-XR500V/520V HD camcorders. If not, please read the Sony instruction manual before attempting to use the housing.

With basic care and maintenance, your AQUATICA housing will give you a lifetime of enjoyment and satisfaction in producing underwater images.

Please read this manual carefully before using your housing for the first time and note that: wherever cited the right hand is your right when using the housing.

SAFETY PRECAUTIONS:

Improper transportation handling or use of this housing might cause a flood or malfunction.

Please read and follow the following precautions:

• Store and transport the housing in a sturdy, shock proof container and avoid travelling with the camera mounted inside the housing as impact forces especially on the external push buttons will be transferred to the camera.

• When traveling by air, either remove the port or open the housing.

• Never change a port or open the housing in a location where sand or similar foreign material might come in contact with an O-ring.

• Use of accessories or modifications and alterations unauthorized by the manufacturer may result in flooding or poor functioning of the controls.

• Be careful when opening the housing as the pressure buildup inside the housing will exaggerate the force of the latch spring. Keep fingers away from the path of the latches.

• Whenever changing ports or O-rings, perform a simple seal test with out the camera inside.

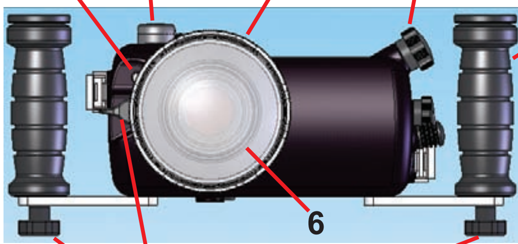
• Avoid scratching the acrylic or glass ports and windows.

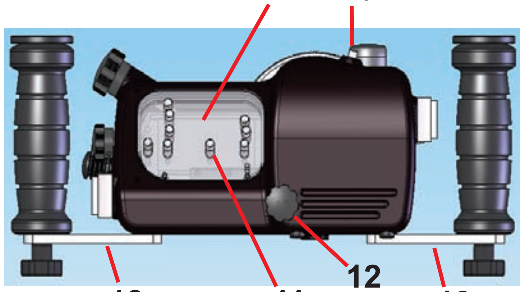
• Make sure that all ports remain properly attached before rinsing the housing.

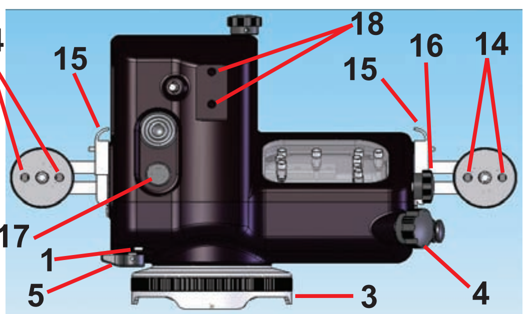
• The main O-ring seals should be maintained and cleaned on a regular basis. Read and follow the Care and Maintenance section on this manual.

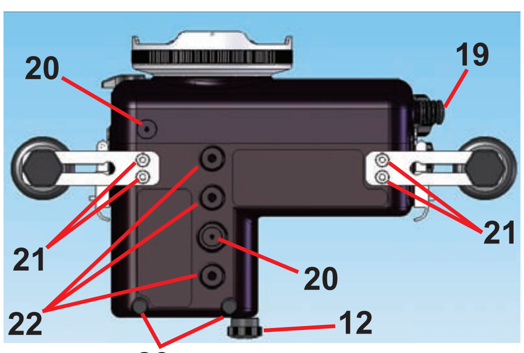
• Ensure that the spring loaded secondary lock is properly engaged on the latches to prevent their accidental opening

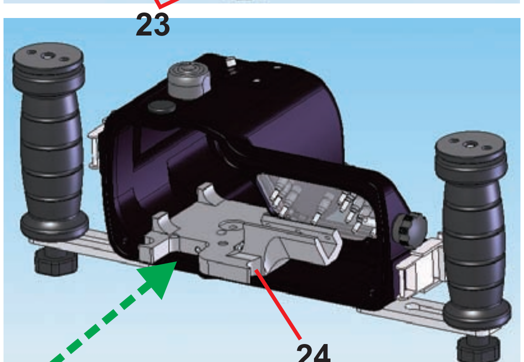
AQUATICA Digital



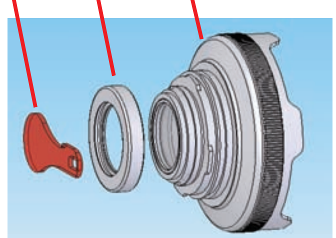








1- Port release push button
2- Hydrophone
3- Port (bayonet dome ring)
4- Focus Exp. AE shift & WB shift knob
5- Flip filter lever
6- Dome port
7- Grips handles (x 2)
8- Grip adjusting knob (x 2)
9- Viewing port window
10- Photo function push button
11- Touch screen push button
12- Power ON/OFF control knob
13- Grips mounting brackets
14- Grip's Accessories mounting holes (1/4”-20)
15- Latches (x 2)
16- Zoom Tele/Wide control knob
17- Extra accessory bulkhead connector
18- Accessory mounting hole (1/4”-20) (x 2)
19- Focus Exp., AE shift & WB shift trigger
20- Sacrificial Anodes (x 2)
21- Grip support bolts (1/4-20) (x 4)
22- tripod mounting holes (1/4-20) (x 3)
23- Rubber Anti Skid pad (x 2)
24- Mounting saddle
25- Color Correction Flip Filter
26- Macro lens holder



HD WAVE® DIGITAL VIDEO HOUSING

AQUATICA Digital

1. **PORT RELEASE PUSH BUTTON:** pushing this button will unlock the port, rotate the port and pull out to remove.

2. **HYDROPHONE:** This hydrophone will records sound underwater when connected to the camera

3. **PORT:** Removable port.

4. **FOCUS, EXP. AE SHIFT & WB SHIFT KNOB:** Use to select the various options available.

5. **FLIP FILTER LEVER:** Turn one side or the other to engage the color correcting filter (see key #25).

6. **DOME PORT:** This port contain a wide angle lens converter as well as a detachable macro lenses (see key #26)

7. **GRIPS HANDLES (X2):** Left and right grip allowing the mounting of light fixture arms and accessories.

8. **GRIPS ADJUSTING KNOBS:** uses to adjust grips distance for better comfort.

9. **VIEWING PORT WINDOW:** This port window allows viewing of the images as well as the various modes, menus and functions of the camcorder; these are accessible via the provided push buttons and controls knobs.

10. **PHOTO FUNCTION BUTTON:** Push to engages and operates the photo feature of the camcorder.

11. **TOUCH SCREEN PUSH BUTTON:** Push to activate the touch screen function of the screen.

12. **POWER ON/OFF KNOB:** Rotate to turn camcorder ON or OFF

13. **GRIPS MOUNTING BRACKETS:** These two mounting bracket offer a range of adjustment to position the grip in the most comfortable position on the housing.

14. **GRIP'S ACCESSORIES MOUNTING HOLES:** Two 1/4-20" holes on each grip are ready to accept TLC Base Brackets or TLC Base Ball for light arms or accessories.

15. **LATCHES:** Two heavy duty latches with safety locks to protect against accidental opening.

16. **ZOOM TELE/WIDE CONTROL KNOB:** Rotate to engage zoom function to closer or wider

17. **EXTRA ACCESSORY BULKHEAD CONNECTOR:** This additional bulkhead connecting port is for attaching additional accessories such as external monitor etc.

18. **ACCESSORY MOUNTING HOLES**: Two 1/4"-20 TPI holes are supplied to accept a TLC accessory or TLC base ball for mounting a light arm or accessory.

19. **FOCUS, EXP. AE SHIFT & WB SHIFT TRIGGER:** press to engage the feature selected with the knob (key #4).

20. **SACRIFICIAL ANODES:** (2X) zinc anodes are installed to protect your housing against salt water corrosion; theses are made to deteriorate easier than the other strategic part of your housing, hence the name sacrificial anodes. These anodes need to be replaced by the user as needed.

21. **GRIP SUPPORT BOLTS (4x):** theses four hex bolt are for holding the mounting bracket, they are to be attached with the provided hexagonal key wrench.

22. **TRIPOD MOUNTING HOLES:** Three 1/4" X 20 holes are provided for mounting light trays or accessories.

23. **RUBBER ANTI SKID PADS:** Four rubber pads are provided to protect the housing and preventing it from sliding on wet decks.

24. **CAMCORDER MOUNTING SADDLE:** A sliding saddle is provided for quick installation and removal of the camcorder.

25. **COLOR CORRECTION FLIP FILTER:** This filter will correct the color cast associated with underwater video footages, just flip in for ambient light and out for artificial light sequences.

26. **MACRO LENS HOLDER:** A macro lens is provided for close up situation, this need to be installed prior to the dive.

The Aquatica Digital HD WAVE housing series is issued from the world's most technologically advanced underwater housing lineage, ergonomically designed to place all the essential camcorder controls under your finger tips and features the following:

A. Bayonet mounted lens system

B. Port locking mechanism to prevent accidental rotation of the port mounted on the housing.

C. Standard Wide angle lens port; a good all around performance lens giving 70˚FOV with full zoom through & 90˚ FOV with macro adapter off the port, giving partial zooming.

D. Flip filter arm with specially designed ***UR Pro*** tropical water color correction filter.

E. Sensitive Hydrophone to capture clear underwater sound.

F. Auxiliary port

G. A quick release saddle tray, allowing fast and easy removal of camcorder.

H. Large ergonomic and easy to operate controls for most of the manual and electronic camcorder functions.

I. The following controls can be easily manipulated or accessed underwater:
- Mechanical On/Off knob
- Record /Standby push button
- Photo push button
- Zoom Telephoto / Zoom Wide knob
- Home push button (touch screen access)
- Option push button (touch screen access)
- Tele Macro (touch screen access)
- White Balance One Push (touch screen access)
- Smooth Slow-Motion functionality (touch screen access)
- Manual Control Knobs to access Focus, Exposure, AE Shift & WB Shift.

PREPARATION OF THE HOUSING

NOTE: Before unpacking your housing kit, inspect the shipping box as well as all contents for damage during shipping. If damage has occurred, please contact the shipping company immediately. Every Aquatica Housing is pressure tested prior to shipping. However, damage may have occurred during shipping. It is strongly recommended to test dive the housing once without camcorder installed to assure the housing is water tight. This instruction manual assumes that the user is already familiar with the SONY® HDR-XR500V/520V camcorders. If not, please read instruction manuals thoroughly before beginning to use the housing.

Your Aquatica Digital HD WAVE camcorder housing comes to you as follows:

A) Marine Housing

B) Wide Lens port with macro ring adapter (shipped un-mounted from housing)

C) Removable / lockable camcorder saddle (shipped in its position inside the housing)

D) O-ring kit with container of silicone grease

E) Instruction Manual and warranty card

F) Left & Right grips & 2 grip support bracket (included with housing, must be mounted)

G) Allen key (for mounting grip supports)

H) Allen key (for LCD screen adjustment nylon set screws)

PREPARATION OF THE HOUSING

1) Opening the housing:
Two stainless steel safety latches hold securely the front and rear of the housing. They have a positive locking mechanism, so to open them you must first depress the metal tab in the center of latch while pulling on the rear of latch lever. Once both housing sections are separated, remove the camcorder saddle from rear portion of housing.

2) Lubricate the Main O-ring Seal:
Before use, carefully inspect the Main O-ring seal from in its groove on the rear half of the housing to confirm that it is free from scratches or foreign material. Lubricate the O-ring with a light coat of silicone grease. When replacing the O-ring place the entire O-ring over the O-ring groove and start by pushing the O-ring in the corners. Work your way around the O-ring making sure the O-ring is snugly sitting in the groove.
NOTE: When replacing your O-rings, make sure you are using the O-rings provided with the package. Using different O-rings than those in the O-ring kit may cause the housing to leak and result in damage.
For proper handling and maintenance of O-rings be sure to read the section titled “Care and Maintenance: of the O-rings.”

3) Attach grip supports & grips to the housing:
The housing comes with two grips and two grip support brackets for both right and left hand grips. First attached the 2 hand grips to support brackets with the provided knobs (see photo #1). Then position the support brackets which attach to the underneath of the housing on the left and right side, use the 4 screws supplied and Allen key (see photo #2).

Occasionally remove the grips and lubricate the screws (see Care and Maintenance: of the housing.) Depending on which light arm system you are using, you can mount the necessary shoes or brackets onto the 1/4”-20 threaded holes on the top of the hand grips. The AQUATICA TLC arm system is recommended.
There are also three (3) 1/4”-20 threaded holes on the bottom of the housing that can be used for various mounting application trays or tripod. As well there is another set of holes on top rear half of the housing which will accept the optional TLC #17550 base bracket, or the TLC #17553 to support accessories such as external monitor or focus light. (See the entire selection of TLC arm systems on the Aquatica website, www.aquatica.ca.

PREPARATION OF THE CAMCORDER

1) Your Sony camcorder will need some preparation before it is installed in housing.

- Remove any lens caps or external converter lenses you may have attached to your camcorder.
- Tighten hand strap to its smallest position, so it allows for easy clearance when sliding in camcorder.
- Install Memory stick and fully charged battery, (the Aquatica housing will accept up to the NP-FH70 battery)
- Turn on camcorder and proceed to photo mode menu, then turn off flash, its located in the photo settings under FLASH MODE, this will prevent the flash from firing when taking a picture while camcorder is in the housing. Than turn off STEADYSHOT, which is located in the Movie Setting menu, this will prevent vignetting when using the Wide angle lens without macro ring adapter.

2) Installing the camcorder into housing:

- Open the camcorder LCD fully and slightly angle it about 20˚ (see photo #3), place on to saddle, insert bottom of LCD on saddle support rail, make sure it is seated at the right angle. Tighten the bottom thumbscrew with a coin or a screwdriver securely (see photo #4), now tighten both White Allen set screws located underneath the LCD screen on the saddle support rail, with supplied Allen key (VERY IMPORTANT DO NOT OVER TIGHTEN SCREWS), just enough to hold the LCD snug to the support rail (see photo #5).

NOTE: The 2 white nylon set screws located underneath LCD screen saddle support, may need to be adjusted accordingly, for proper push button functionality of the LCD port viewing window. If the screws are tightened to much certain push buttons may not make proper contact with the touch screen of camcorder. If this occurs loosen screws until proper contact. (This adjustment may require inserting and removing the camcorder into the housing several times to properly adjust the tightness of the LCD screen to saddle rail (see photo #5).

- Camera should now be set and mounted on saddle, and ready to be placed inside rear half of housing. Open small door on rear right side of camcorder, to expose the Red microphone input jack, plug in the hydrophone cable (see photo #6). Line up camcorder and saddle with the 2 dowel pins inside of housing, slide in until saddle is well seated on both pins, You can now slide the camcorder all the way to the rear of housing, than lock saddle by lowering saddle lock arm (see photo #7).



Photo #8

There is a nylon set screw provided on the saddle (see photo 8), this adjusting screw is used for precision alignment of the camera in regard to the wide angle converter. Use the provided hexagonal wrench to gently turn the set screw and align the camera, in the event that it would need some adjustment, then turn screw in small increment and test by installing the camera at its widest zoom setting and check for vignetting in the corner of the monitor screen.


Photo #1


Photo #2


Photo #3


Photo #4


Photo #5


Photo #6


Photo #7

3) Closing the housing:

Before closing the housing always ensure that:
1. The main O-ring on the rear half of the housing is clean, lubricated and properly seated for a positive seal.
2. The sealing surface on the front half of the housing is clean and free from any scratches or physical damage.
3. All cords or wires are tucked in so that they do not interfere with the closing of the housing.

- Place front section of housing onto the rear half. You will notice clearly when the housing halves are perfectly aligned and seated together properly.
- Locate and close the two latches at the same time.

(NOTE: Make sure both latches are closed and locked prior to use to avoid accidental opening of the housing underwater.)
- Carefully inspect the parting line between front and rear of housing. Make sure the line is even all the way around, if not open the housing and determine the reason. (O-ring not seated in place, hydrophone cable interference. etc) Failure to do this may result in a water leak which can cause camcorder failure.
- Power up the camcorder, check all controls for the proper operation before entering the water.

PREPARATION OF THE LENS PORT

3) Lubricate the Lens port O-ring seal:

- Before using the lens port, remove the O-ring on the rear of the port and lightly coat it with silicone grease. For more details be sure to read the section titled "Care and Maintenance: of the O-rings."



Photo #9

4) Mounting the Lens port:

- Before mounting the Port on the housing always ensure that the port O-ring is clean, lubricated and properly seated in its groove and that the sealing surface on the housing is clean and free of physical damage.

The AQUATICA Digital HD Video Housing System features a locking bayonet mount. To mount the lens port ring simply:

1. Place the housing on a flat steady surface.
2. Place the lens port inside the main port of the housing. Align one of the four alignment notches with the opening of the housing, make sure that one of the two larger lens petals of the shades are on the top and bottom of the lens port (see photo #9)
3. Place your hands on opposite sides of the lens port
4. Push with even force on both sides of the port until you feel it snap into place. Make sure the bayonet is completely inside the housing.
5. Finally press the port lock button down (see photo #10), turn the Port clockwise until it stops and then release the port lock button. Do not force it.
If there is too much resistance take the port off, check the O-ring and retry.
6. Check to ensure for the proper seating and sealing of the lens port and that it is safely locked on the housing.
Note : It is recommended that you familiarize yourself with this mount by trying it without the camcorder, this will allow you to see the inside view of the bayonet mount and of the lens port in the housing.



Photo #10

5) Wide angle Lens:

- The standard lens which came with your HD WAVE Digital Video housing is a great multi-purpose performance lens giving 70˚ FOV with full zoom through & 90˚ FOV with partial zooming.
- The lens port is comprised of 2 parts, the rear macro adapter which comes installed screwed in place, and the larger lens port which contains the lens adapter. With the macro adapter installed you will be able to shoot wide angle video getting about 70˚ FOV. You can than zoom in completely and get to about 15" of subject for good macro shooting. Without the macro adapter screwed in place you will be able to shoot extra wide angle video getting about 90˚ FOV with partial zooming, great for large subjects and wrecks.

Whenever changing ports or O-rings, it is highly advisable to perform a simple seal test without the camcorder inside. Strapping a weight to the housing and lowering the unit to a depth of 30 to 50 feet of water for at least 10 minutes will assure you that the seating of the new port or O-ring is proper. This test, though time consuming and often considered unnecessary, may save your camera equipment from irreparable water damage. The housing is now ready for the dive.

CAUTION: Never jump into the water with the housing. It is best to have the system handed to you after you have made your entry, or have it lowered to you on a rope. Make certain that ropes of other equipment stay clear of the system. When using underwater imaging equipment it is easy to loose track of your surrounding and end up damaging the reef system, keep your buoyancy in check and be sure to respect the environment. Avoid damaging marine life or manipulating sea creatures to obtain a pleasing scene. The housing is designed to be slightly negatively buoyant so that you can lay it down on the bottom, but do avoid laying it on living coral or other delicate marine life.

TRANSPORTING THE AQUATICA Pro Digital housing

Store the AQUATICA Digital HD Video housing in a sturdy, shock proof container. When travelling by air, remove or loosen the port. This allows for equalization of the air pressure inside the housing to the external air pressure. Failure to do so may cause serious damage to the lens port. Avoid travelling with the camcorder mounted in the housing. If you must do so, remove the lens as external pressure can damage the camera.

CARE AND MAINTENANCE

Of the housing:

After each and every salt water dive, your housing system should be soaked or rinsed in fresh water. The housing system should soak in fresh water for at least 30 minutes. During this soaking period reach into the water and operate all the controls several times.

Be sure to remove the housing's main O-ring and clean it after every use. Refer to Maintenance: Of the O-rings. To ensure that the hand grips won't fuse on to the housing due to the exposure to salt water, it is also a good practice to occasionally remove the hand grips. Clean and lubricate the bolts with a small amount of WD-40.

WARNING: Use WD-40 carefully, sparingly and only on metal to metal surfaces. WD-40 can damage the acrylic on the lens port, the optical surfaces on lens as well as the O-rings.

Of the Ports:

Care should be taken with the Lens Port to avoid scratches on the lens surface. The acrylic port is softer than glass so minor exterior scratches are often unavoidable. However, since the indices of refraction for acrylic and water are almost equal the scratches will not seriously impair image quality. Internal scratches (air side) must be avoided as they do not fill in with water and will affect the quality of the image. Clean the dome using only products recommended for cleaning acrylic and a soft lint free cloth. Dust on the interior surfaces of the port can be removed with a soft camel hair brush or a blower brush. Caution must be taken when using aerosol devices as not to spray the lens material with the liquid propellant as this may seriously affect the optical properties of the port. Use of pressurize air from a dive tank is not recommended, the force of the air stream may easily dislodge a port or O-ring, It is advisable that ports should be removed and serviced after every dive.

Of the Latches:

The two latches of the AQUATICA Pro Digital are designed to have a locking action to prevent accidental opening. Always ensure that the locking mechanism is secure. Watch for the build-up of corrosion or salt residue around the latches. This will appear as a white material. Lubricate the latches with a small amount of WD-40 to remove the corrosion or salt residue build-up.

Of the O-rings:

The O-rings that need to be maintained on a regular basis are the main housing O-ring and the O-ring on the lens port The main O-ring should be cleaned on a daily basis and the port O-ring should be cleaned daily or each time the port is changed.

Of the sacrificial anode:

The anode attached to the bottom part of the housing is there to prevent corrosion due to electrolysis, as time goes it will deteriorate and needs to be replacement, contact your dealer for replacement (parts # 19220).

TO SERVICE O-RINGS ON THE HOUSING MAIN O-RING, LENS PORTS.

1. Remove the O-ring. It is important never to use a sharp instrument when removing an O-ring as this may damage the O-ring groove or the O-ring itself. A bobby pin or edge of a credit card works well.

2. Once the O-ring is removed, it should be examined for damage. Check to make sure that the O-ring is free of nicks and cuts and that it retains its original round profile. O-rings that appear to be damaged should be discarded immediately and replaced with new O-rings.

3. Rinse the O-ring with fresh water and dry it with a clean lint free cloth.

4. Clean the O-ring groove (where the O-ring sits) with a cotton swab. Be sure to remove any lint the cotton swab may leave behind and give the groove of the O-ring a proper inspection.

5. Wipe the part of the housing that the O-ring seals against with a clean lint-free cloth.

6. Re-grease the O-ring with a thin layer of O-ring grease until it appears to be smooth and shiny. Do not over grease it. Use just enough grease so the O-ring will pull smoothly through your fingers. Excessive amounts of grease will only serve to attract dirt to the O-ring.

7. Make sure that the O-ring is properly (evenly) installed in the O-ring groove.

8. To reinstall the clean and lubricated O-ring, place the entire O-ring over the groove and start by pushing the O-ring in at each corner then, push the O-ring at each side and finally, work in the rest of the O-ring.
NOTE: Never start at one end and work your way around the O-ring. This places uneven tension on the O-ring which may cause the O-ring to stretch resulting in excess O-ring, which will have no place to go.
There are internal O-rings on the housing controls as well. These O-rings are not as susceptible to damage as they are not exposed but they do require yearly maintenance and are not user serviceable. The housing should be returned to AQUATICA or to an authorized AQUATICA service facility for this annual maintenance. Check for the closest service center on our web site www.aquatica.ca.

An internal moisture alarm is installed in your AQUATICA Pro Digital housing (Product # 20023). This moisture alarm is powered by an easily replaced CR 2032 battery. Please read the instruction sheet provided for your moisture alarm prior to installing the battery.

RECOMMENDED AQUATICA ACCESSORIES

Maintenance O-ring kit (includes main body and lens O-rings)

Rebuilt O-ring kit (includes all necessary O-rings for a complete rebuilt)

Please visit our web site at www.aquatica.ca for a complete selection of our Technical Lighting Control line of strobe arms and supports.

WARRANTY

PLEASE READ CAREFULLY

One year Limited Warranty.

Thank you for purchasing an AQUATICA manufactured product! Your AQUATICA housing is handcrafted by a small group of specially trained individuals - each of whom takes the most pride and satisfaction in offering you the best underwater camera housings in the world. All AQUATICA products are guaranteed against defects in material or workmanship for (1) one full year from the date of purchase for consumer use. These same products when used commercially will carry a 90 days warranty. No statutory warranty applies. Camera housed in AQUATICA housings are not covered under this warranty and ANY WATER DAMAGE SUSTAINED DUE TO INSTALLATION ERROR OR ANY OTHER REASON IS NOT THE RESPONSIBILITY OF AQUATICA. Therefore the appropriate insurance should be maintained by the user.

Warranty does not apply to replaceable seals or damages to impacts or abrasive surfaces. Warranty applies only to products purchased from authorized AQUATICA dealers and does not extend beyond the original retail purchaser. Unauthorized modifications or repairs will automatically void this warranty. This applies to removal of serial numbers and AQUATICA identification labels.

To obtain service during or after the warranty period ***you must notify*** AQUATICA at 514-737-9481 and ship BY REGISTERED MAIL (INSURED) **ONLY**, enclosing your proof of purchase to:

AQUATICA
3025 De Baene
Montreal (Quebec)
H4S 1K8

Mark clearly on your package “Canadian goods returned for repair”

Do not ship by any other means.
Unauthorized packages will be refused.

YOUR SERIAL NUMBER______________________________